CTIS 164 - Technical Mathematics with Programming

Homework #2 (15%)

Deadline 10 April 2022, 23:55
Grouping No grouping, individual work (do not copy any part of a friend's program)
Submit Through moodle system
Material for submission only C source code as *YourSurname_Name.cpp, DO NOT SEND all project files, Only file with CPP extension. Otherwise, you will lose **10Pts**!*

Subject You will design an autonomous "angular firing" game using your own imagination. Video clip of a sample homework is provided on the moodle page.

Important Note The scene shown in the video is given as just an example. You have to design your own screen and your own animation (your own background, target object, etc.).

Minimum requirements: 80 Pts

- **(10pts)** Display your name and a meaningful message for the purpose of the game as the title of the window. Display anything as you wish on a label, such as your name, id, course code etc.
- **(10pts)** Place a firing object at any location on the window. This object is static (cannot be moved on the screen); but it has a barrel that rotates automatically. Display the angle of the barrel inside of this object.
- **(10pts)** A random target object with a random color at a random location will be displayed. It should be a complex object (car, bicycle, bird, airplane, rocket, UFO, etc.) composed of at least 8 subparts, using lines, triangles, circles, quads, polygon and so on.
- **(40pts)** After adding a target into the scene, the firing object automatically changes its barrel's direction along the target. When the barrel aligns with the target, it throws a circular object (fire) to the target. If the fire hits the target, it disappears, and a new random target is created.
- **(10pts)** A timer is displayed at the *timer* area. Game should continue for 60 seconds.

Bonus Points: After completing these basics, you can make any improvements to your program as you wish. You will get extra points according to your creativity and your programming skills. But, you have to list these improvements in the beginning of your source code as comment lines. Additional functionalities that are not reported in the source code, will not get any bonus points.

Important Notes (your grade will be reduced, if you don't follow the following rules!)

- Name your source code as `YourSurname_Name.cpp`.
- At the beginning of your source code include a comment block containing your name, student number, section, problems in your program and additional functionalities, if any. If your program does not meet the minimum requirements, explain them in the PROBLEMS section of the given template source code.
- Use comment lines in your program.
- Do not create a window larger than 1400x800 pixels.
- Do not upload all project files. Do not upload a zip file. Upload only your source code with `.cpp` extension.
- Source codes that do not compile and run on the lab computers, will not be graded! It is the student's responsibility to check any compatibility problems before uploading onto moodle.
- If you miss the deadline you can send your source code via e-mail within 24 hours of the deadline. But your grade will be reduced by 40 percentage points.
- Materials sent later than 24 hours after the deadline, will not be graded.
- Sample video is given as just an example. You have to design your own screen and your own animation (your own scene, moving object, etc.).
- Do not copy any part of a friend's program. You can share ideas but not code. Sharing any part of C source code leads to grade 0.

Good luck :-)
Okyay